

Remarks

Reconsideration of this application is respectfully requested.

Claim 1 describes injecting a thermoset polyurethane reaction mixture into a closed mold to form a golf ball cover layer and opening the mold and removing the golf ball within about 10 to 60 seconds after the injecting step. Claim 16 has been amended to make clear that the first and second reactants are mixed together to form a thermoset reaction mixture and that the thermoset reaction mixture is introduced to a closed mold to form a golf ball cover layer about the golf ball component from the thermoset reaction mixture. New claims 21 and 22 specifically describe reaction injection molding.

Claim 20 has been cancelled.

A check in the amount of \$50.00 is enclosed for the filing fee for one additional dependent claim. If any additional fee is required, please charge the cost thereof to our Account No. 07-2069.

In the first two Office Actions the examiner relied on Kennedy 6,290,614 despite the applicants' Declaration Under 37 C.F.R. 1.131 which was filed on September 23, 2002. However, in the Advisory Action mailed March 21, 2005, the examiner stated that, in view of the Declaration filed 9/23/02 and the copies of applicant's parent application and Kennedy's parent application, it has been determined by the examiner that Kennedy 6,290,614 should not have been applied because claims 16-20 have an earlier effective filing date than Kennedy 6,290,614.

The examiner now uses Sullivan 6,083,119 to reject claims 1-12 in combination with Hoy et al. However, the filing date of Sullivan '119 is March 18, 1998. As stated in applicants' Declaration Under 37 C.F.R. 1.131, the invention described in applicants' claims 1-20 was conceived before July 31, 1997 (§ 3) and was reduced to practice on March 17, 1998 (§ 22). Furthermore, the inventors exercised diligence between the conception of the invention before July 31, 1997 and the reduction to practice on March 17, 1998 as evidenced by paragraphs 4-22 of the Declaration and the exhibits attached thereto. Accordingly, the Declaration filed September 23, 2002 removes Sullivan '119 as a reference.

Sullivan '119 was filed as a continuation-in-part of application No. 08/631,613, which issued as Sullivan Patent No. 5,803,831. A copy of Sullivan '831 is submitted herewith with an Information Disclosure Statement. The Declaration does not remove Sullivan '831 as a reference. However, all of the references in Sullivan '119 to reaction injection molding or RIM do not appear in Sullivan '831. The evidence therefore establishes that the applicants are the first to conceive of reaction injection molding a thermoset polyurethane reaction mixture to form a golf ball cover layer.

As described on pages 4 and 5 of applicants' specification, thermoset compositions suitable for use as cover materials for golf balls are described in Patent Nos. 3,979,126, 3,989,568, 4,123,061, and 5,334,673. However, all of those patents describe a slow curing process. For example, 3,979,126 describes curing times of 2 to 3

weeks. Patent Nos. 5,006,297, 5,733,428, 5,888,437, and 5,947,843 also describe thermoset polyurethanes but use casting operations and open molds for making golf balls which also require long curing times. None of those patents describes reaction injection molding.

Sullivan '831, in columns 22 and 23, describes the use of thermoplastic polyurethane such as Estane X-4157 from B.F. Goodrich, Texin from Mobay Chemical Co., and Pellethane from Dow Chemical Co.

Column 23, lines 23-25 of Sullivan '831 refer to thermoset polyurethanes including but not limited to those disclosed in U.S. Patent No. 5,334,673. Patent No. 5,334,673, which issued to Wu, was also cited by the examiner. However, Wu describes a slow-curing thermoset polyurethane which uses a casting process to make the golf ball. As described in columns 4 and 5 of Wu, the process comprises an initial curing step in an open mold followed by a molding step wherein the core is placed in one of the mold cups. The mold is then closed and the urethane is allowed to cure. The preliminary curing step comprises introducing urethane into both halves of an open mold and allowing the material to partially cure. An intermediate curing step is preferably employed after the initial molding step but before the final molding step.

Accordingly, the reference in column 23 of Sullivan '831 to thermoset polyurethanes including but not limited to those disclosed in U.S. Patent No. 5,334,673 is nothing more than a disclosure of the casting type of molding process described in

Wu and similar prior art patents. There is no disclosure or suggestion in Sullivan '831 or any other prior art reference of using reaction injection molding to mold a golf ball cover layer from a thermoset polyurethane reaction mixture. Further, there is no disclosure in Sullivan '831 or any other prior art reference of opening the mold and removing the golf ball within about 10 to 60 seconds as described in claim 1.

It is clear that the inventors of Sullivan '831 had not conceived of forming a golf ball cover layer from reaction injection molded thermoset polyurethane at the time the '831 patent was filed. This is established by comparing the disclosure of Sullivan '831 with the disclosure of the later - filed Sullivan '119:

Sullivan '831

Col. 22 describes Estane X-4517 polyurethane, which is a thermoplastic polyurethane.

Col. 23 describes additional thermoplastic polyurethanes such as Texin and Pellethane and thermoset polyurethanes including but not limited to those disclosed in U.S. Pat. No. 5,334,673 (i.e., cast or slow-curing thermoset polyurethanes).

The only specific example using polyurethanes is described in cols. 33 and 34 and uses Extane X-4517 polyurethane which is a thermoplastic polyurethane.

Sullivan '119

The Abstract refers to reaction-injection-molded polyurethanes.

Col. 3, line 54 refers to reaction-injection-molded polyurethanes.

Col. 13, lines 24-25 and 51-52 refer to reaction injection moldable polyurethanes.

Col. 19, lines 61-62 refer to reaction-injection molded material such as one or more of the bayflex RIM polyurethanes from Bayer.

The foregoing comparison makes clear that persons of ordinary skill in the golf ball art consider reaction injection molding of thermoset polyurethane to be significantly different than molding thermoplastic polyurethane or casting thermoset polyurethane in an open mold and that the use of reaction injection molding did not occur to Sullivan at the time the '831 patent was filed.

The examiner refers to column 23, lines 5-13 of Sullivan '119, which describes forming golf ball cover layers by compression molding or injection molding. However, compression molding and injection molding are significantly different than reaction injection molding. For example, Sullivan '119, beginning at column 22, line 65, states that in compression molding the inner cover composition is formed by via injection into smooth surfaced hemispherical shells which are then positioned around the core in a mold having the desired inner cover thickness and subjected to compression molding to fuse the shells together. In other words, two hemispherical shells or half-shells are first injection molded and removed from the injection mold. The solid half-shells are then placed around the core, and the half-shells are fused together by compression molding.

Injection molding as described by Sullivan '119 is commonly used to form golf ball cover layers. However, injection molding requires a thermoplastic material. A thermoset material cannot be injection molded in the equipment which is used to injection mold golf ball cover layers.

Sullivan '119 clearly recognizes the distinction between injection molding and reaction injection molding in column 13, lines 24-26 and lines 51-53, which refer to both reaction injection moldable polyurethanes and injection moldable polyurethanes.

Thus, once Sullivan '119 is removed as a prior art reference, which is required by the applicants' Declaration Under 37 C.F.R. 1.131, Sullivan '119 provides clear support for the differences between injection molding and reaction injection molding in the golf ball art and the differences between using thermoplastic polyurethane or castable thermoset polyurethane, as described in the prior art, and reaction injection molded thermoset polyurethane. Further, the comparison between the disclosure of Sullivan '831 and the disclosure of Sullivan '119 supports a conclusion that it was not obvious to a person of skill in the golf ball art to form golf ball cover layers by reaction injection molding thermoset polyurethane. It is clear from the disclosure of Sullivan '831 that the inventors had not conceived of using reaction injection molded thermoset polyurethane, and it is clear from the later disclosure of Sullivan '119 that the inventors then considered using reaction injection molded thermoset polyurethanes to be significantly different from the use of thermoplastic polyurethanes and castable thermoset polyurethanes .

The examiner has rejected claims 1-12 under 35 U.S.C. 103(a) as being unpatentable over Sullivan '119 in view of Hoy et al. The examiner states that Sullivan '119 and Hoy et al are combinable because they are analogous with respect to RIM with polyol and isocyanate prepolymer to form a polyurethane product. However,

Sullivan '119 should be removed as a prior art reference because of applicants' Declaration Under 37 C.F.R. 1.131.

Although the Declaration does not remove Sullivan '831 as a prior art reference, Sullivan '831 and Hoy et al are not combinable because there is no disclosure in Sullivan '831 of RIM or forming golf ball cover layers from thermoset polyurethanes other than the casting technique described in Wu 5,334,673. Accordingly, there is no disclosure or suggestion in either Sullivan '831 or Hoy et al of reaction injection molding thermoset polyurethane to form golf ball cover layers. Hoy et al merely refers to reaction injection molding polyurethanes to form, for example, fascia for automobiles. There is no disclosure or suggestion in Hoy et al of any applicability of RIM to the golf ball art. Since there is no disclosure or suggestion in Sullivan '831 or Hoy et al or any other prior art reference of combining Sullivan '831 and Hoy et al, those references cannot be combined to reject the claims.

Claims 16-19 were rejected under 35 U.S.C. 103(a) as being unpatentable over Sullivan '119 in view of Weber et al 4,218,543. Again, Sullivan '119 is not a proper prior art reference because of the Declaration Under 37 C.F.R. 1.131. Sullivan '831 cannot be combined with Weber et al for the same reasons that Sullivan '831 cannot be combined with Hoy et al. The examiner states that Sullivan '119 and Weber et al are combinable because they are analogous with respect to forming a polyurethane product from a polyol and an isocyanate by RIM. However, Sullivan '831 does not disclose

RIM, and there is therefore no suggestion in either Sullivan '831 or Weber et al or combining Sullivan '831 and Weber et al. Accordingly, claims 16-19 cannot be rejected under 35 U.S.C. 103(a) as being unpatentable over Sullivan '831 in view of Weber et al. Weber et al, like Hoy et al, describes reaction injection molding parts for the automobile industry. There is no disclosure or suggestion in Weber et al of using RIM to mold golf ball cover layers.

In view of the forgoing, reconsideration and allowance of this application is respectfully requested.

Respectfully submitted,

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